Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (currently amended) A culture system comprising:

(a) a fluid inlet;

(b) a first culture compartment having a tubular housing made of a fluid-impenetrable material, wherein the tubular housing has a first end and an opposed second end;

(c) a first end piece attached to the fluid inlet on one side and to ~~a~~ the first end of the tubular housing on a second side,

(d) a second culture compartment coaxial with the first culture compartment, the second culture compartment having a proximal end and a distal end;

(e) a fluid connector having a first side mounted on ~~a~~ the second end of the tubular housing and a second side mounted on the proximal end of the second culture compartment, the fluid connector having a through bore passing from the first side to the second side of the fluid connector;

(f) a connector filter having a first end and a second end, wherein the first end is ~~positioned~~ mounted on the first side of the fluid connector, the connector filter positioned to filter a fluid stream passing out of the first culture compartment ~~and~~ into the through bore of the fluid connector and into the second culture compartment;

(g) a fluid outlet;

(h) a distal end piece mounted on the distal end of the second culture compartment and connected to the fluid outlet; and

(i) an outlet filter ~~supported by~~ having a one end mounted on a proximal side of the distal end piece.

2. (currently amended) The culture system of claim 1, wherein the connector filter ~~is a molecular weight cut-off membrane that~~ transverses the first culture compartment ~~and is supported on one end by the fluid connector and~~ wherein the second end of the connector filter is mounted on ~~a~~the second ~~end by~~side of the first end piece.

3. (currently amended) The culture system of claim 1, wherein the outlet filter ~~is a molecular weight cut-off membrane transversing~~ transverses the second culture compartment, ~~and supported on~~

the outlet filter having ~~one end by the fluid connector and on a second end by the distal end piece~~a second end mounted on the second side of the fluid connector.

4. (currently amended) The culture system of claim 2, wherein the ~~outlet~~ connector filter ~~is~~ includes a molecular weight cut-off membrane ~~transversing the second culture compartment and supported on one end by the fluid connector and on a second end by the distal end piece~~.

5. (currently amended) The culture system of claim 1, wherein the outlet filter is a membrane carrier assembly transversing the second culture compartment wherein the membrane carrier assembly has:

a support cylinder ~~having a first end supported by the fluid connector and a second end supported by the distal end piece~~;

a molecular weight cut-off membrane secured to an exterior surface of the support cylinder, and

a chamber between the exterior surface of the cylinder and an interior surface of the membrane, the chamber in fluid communication with the through bore of the fluid connector and the fluid outlet.

6. (original) The culture system of claim 1, wherein the through bore of the fluid connector is intersected by a through bore of a second fluid inlet.

7. (original) The culture system of claim 1, further comprising at least one penetration port extending through a wall of the first or second culture compartment.

8. (original) The culture system of claim 1, further comprising a gas venting means for allowing gas to escape from the first or second culture compartment as the compartment is filled with fluid.

9. (original) The culture system of claim 1, further comprising a fill means for inserting fluids into or removing fluids out of the first or second culture compartment.

10. (original) The culture system of claim 1, wherein the first end, the distal end and the fluid connector are concurrently rotated by a drive assembly.

11. (original) The culture system of claim 1, wherein the second culture compartment has a greater volume than the first culture compartment.

12. (original) The culture system of claim 1, further comprising an identifier.

13. (original) The culture system of claim 12, wherein the identifier is a bar code.

14. (currently amended) A culture system comprising:

(a) a fluid inlet;

(b) a first culture compartment having

(i) a fluid-impenetrable tubular sleeve having a first end and an opposed second end,

(ii) a growth compartment within the sleeve, and

(iii) a first end piece having one side attached to the fluid inlet ~~on one side~~ and a second side attached to a first end of the tubular ~~housing~~sleeve ~~on a second side,~~; ~~and~~

~~(iv) a membrane carrier assembly transversing the growth compartment comprising~~

~~a support cylinder,~~

~~a molecular weight cut-off membrane secured to an exterior surface of the support cylinder, and~~

~~a chamber between the exterior surface of the cylinder and an interior surface of the membrane, the chamber in fluid communication with the fluid inlet and the growth compartment;~~

(c) a second culture compartment coaxial with the first culture compartment, the second culture compartment having

(i) a fluid-impenetrable housing having a proximal end and a distal end;

(ii) a growth compartment within the housing, and

(iii) a housing end piece mounted on the proximal end of the housing;

(d) a membrane carrier assembly transversing the second culture compartment comprising

(i) a support cylinder,

(ii) a molecular weight cut-off membrane secured to an exterior surface of the support cylinder, and

(iii) a chamber between the exterior surface of the cylinder and an interior surface of the membrane, the chamber in fluid communication with the through bore of the fluid connector and the growth compartment within the housing;

(~~d~~e) a fluid connector having a first side mounted on ~~a~~the second end of the tubular sleeve and a second side mounted on the proximal end of the housing end piece of the second culture compartment, the fluid connector having a through bore passing from the first side to the second side of the fluid connector wherein the through bore is in fluid communication with the chamber of the membrane carrier assembly and the interior of the second culture compartment;

(f) a connector filter having a one end supported by the first side of the fluid connector.

(~~e~~g) a fluid outlet;

(~~f~~h) a distal end piece mounted on the distal end of the second culture compartment and connected to the fluid outlet; and

(~~g~~i) an outlet filter ~~supported by~~mounted on the distal end piece.

15. The culture system of claim 14, wherein the ~~outlet filter is a~~ connector filter includes a molecular weight cut-off membrane ~~transversing the second culture compartment and supported on one end by the fluid connector and on a second end by the distal end piece~~.

16. (currently amended) The culture system of claim14, wherein the ~~outlet~~ connector filter includes:

a cylindrical support transversing the ~~second~~ first culture compartment, the support having a first end supported by the ~~fluid connector~~the first end of the sleeve and a second end supported by the ~~distal end piece~~first side of the fluid connector;

a molecular weight cut-off membrane secured to an exterior surface of the cylindrical support, and

a channel between the exterior surface of the cylindrical support and an interior surface of the membrane, the channel in fluid communication with the through bore of the fluid connector and the ~~fluid outlet~~growth compartment of the first culture compartment.

17. (currently amended) The culture system of claim ~~16~~15, wherein the connector filter includes a molecular weight cut-off membrane ~~transversing the growth chamber has~~having a different molecular weight cut-off than the molecular weight cut-off membrane of the ~~outlet filter~~membrane carrier assembly.

18. (currently amended) The culture system of claim ~~16~~15, wherein the molecular weight cut-off membrane ~~transversing the growth chamber~~of the connector filter is identical to the molecular weight cut-off membrane of the ~~outlet filter~~membrane carrier assembly.

19. (original) A culture system comprising:

(a) a fluid inlet;

(b) a first culture compartment having a tubular housing;

(c) a first end piece attached to the fluid inlet on one side and to a first end of the tubular housing on a second side,

(d) a second culture compartment coaxial with the first culture compartment, the second culture compartment having a proximal end and a distal end;

(e) a fluid connector having a first side mounted on a second end of the tubular housing and a second side mounted on the proximal end of the second culture compartment, the fluid connector having a through bore passing from the first side to the second side of the fluid connector;

(f) a connector filter positioned on the first side of the fluid connector to filter a fluid stream passing out of the first culture compartment and into the through bore of the fluid connector;

(g) a fluid outlet;

(h) a distal end piece mounted on the distal end of the second culture compartment and connected to the fluid outlet; and

(i) an outlet filter transversing the second culture compartment including:

a support cylinder having a first end supported by the fluid connector and a second end supported by the distal end piece,

a molecular weight cut-off membrane secured to an exterior surface of the support cylinder, and

a chamber between the exterior surface of the cylinder and an interior surface of the membrane, the chamber in fluid communication with the through bore of the fluid connector and the fluid outlet.